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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/706,149

11/12/2003

Lakshman S. Withanawasam

Honeywell No. H0004595

6076

7590

07/11/2006

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EXAMINER

AURORA, REENA

ART UNIT

PAPER NUMBER

2862

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/706,149	WITHANAWASAM ET AL.	
	Examiner	Art Unit	
	Reena Aurora	2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 18 is/are pending in the application.
- 4a) Of the above claim(s) 12 - 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 11 and 16 - 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This communication is in response to amendment received on 04/24/06.

Claims 1 – 11 and 16 – 18 are presented for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 9, 11 and 16 - 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ott et al. (6,212,783) in view of Kawamoto (5,659,249).

As to claim 1, Ott et al. (hereinafter referred to as Ott) discloses a 360-degree rotary position sensor system including a substrate having (a) an angular sensor (IC1, fig. 1) operable to generate an output representative of an angular position of a magnetic field to 180-degrees; and (b) a linear sensor (IC2) operable to generate an output representative of a sense of the magnetic field. Ott fails to disclose that the substrate is a semiconductor substrate. Kawamoto discloses a semiconductor magnetic to electric converter with Hall device wherein Hall device and signal processing circuit is formed on a semiconductor substrate resulting in one chip IC as a semiconductor magnetic-to-electric converter. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the

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device of Ott with the teachings of Kawamoto such that positioning IC1 and IC2 on a semiconductor substrate would decrease the size of the device.

As to claim 2, Ott discloses logic that functions to determine from (i) the output representative of the angular position of the magnetic field; and (ii) the output representative of the sense of the magnetic field, an angular position of the magnetic field to 360-degrees (Note Abstract).

As to claim 3, Ott discloses a magnet (12) mounted on a rotating shaft (10); and wherein the angular position of the magnetic field to 360-degrees is indicative of an angular position of the rotating shaft (Note Abstract).

As to claim 4, Ott discloses the substrate (16) is mounted on a rotating shaft (10); and wherein the angular position of the magnetic field to 360-degrees is indicative of an angular position of the rotating shaft. Ott fails to disclose that the substrate is a semiconductor substrate. Kawamoto discloses a semiconductor magnetic to electric converter with Hall device wherein Hall device and signal processing circuit is formed on a semiconductor substrate resulting in one chip IC as a semiconductor magnetic-to-electric converter. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device of Ott with the teachings of Kawamoto such that positioning IC1 and IC2 on a semiconductor substrate would decrease the size of the device.

As to claim 5, Ott discloses that the linear sensor (IC2) is coaxially located on the substrate (16) with respect to the angular sensor (IC1). Ott fails to disclose that the substrate is a semiconductor substrate. Kawamoto discloses a semiconductor

magnetic to electric converter with Hall device wherein Hall device and signal processing circuit is formed on a semiconductor substrate resulting in one chip IC as a semiconductor magnetic-to-electric converter. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device of Ott with the teachings of Kawamoto such that positioning IC1 and IC2 on a semiconductor substrate would decrease the size of the device.

As to claims 6 - 8, Ott discloses that the substrate (16) is located substantially close to a magnet (12) so that the linear sensor (IC2) and the angular sensor (IC1) detect the magnetic field of a magnet. Ott fails to disclose that the substrate is a semiconductor substrate. Kawamoto discloses a semiconductor magnetic to electric converter with Hall device wherein Hall device and signal processing circuit is formed on a semiconductor substrate resulting in one chip IC as a semiconductor magnetic-to-electric converter. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device of Ott with the teachings of Kawamoto such that positioning IC1 and IC2 on a semiconductor substrate would decrease the size of the device.

As to claim 9, Ott discloses that a magnetic axis of the linear sensor is aligned with at least one magnetic axis of the angular sensor (Note fig. 1).

As to claim 11, it has all the limitations of claims 1, 2, 5 and 6 and is therefore rejected on the same grounds as of claims 1, 2, 5 and 6.

As to claims 16 and 17, Ott discloses a 360-degree rotary position sensor system comprising positioning, substantially close to a magnet (12), a substrate (16) having an

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angular sensor (IC1) and a linear sensor (IC2), wherein the angular sensor (IC1) is operable to generate an output representative of an angular position of a magnetic field with an angle range of 180-degrees; and wherein the linear sensor is operable to generate an output representative of a sense of the magnetic field; and determining, from the outputs of the angular sensor and the linear sensor, an angular position of the magnetic field with an angle range of 360-degrees, whereby the angular position of the magnetic field with the angle range of 360-degrees is indicative of the angular position of the rotating shaft (Note Abstract). Ott fails to disclose that the substrate is a semiconductor substrate. Kawamoto discloses a semiconductor magnetic to electric converter with Hall device wherein Hall device and signal processing circuit is formed on a semiconductor substrate resulting in one chip IC as a semiconductor magnetic-to-electric converter. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device of Ott with the teachings of Kawamoto such that positioning IC1 and IC2 on a semiconductor substrate would decrease the size of the device.

As to claim 18, Ott discloses mounting the substrate (16) on a rotating shaft (10). Ott fails to disclose that the substrate is a semiconductor substrate. Kawamoto discloses a semiconductor magnetic to electric converter with Hall device wherein Hall device and signal processing circuit is formed on a semiconductor substrate resulting in one chip IC as a semiconductor magnetic-to-electric converter. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made

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to have modified the device of Ott with the teachings of Kawamoto such that positioning IC1 and IC2 on a semiconductor substrate would decrease the size of the device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ott et al. (6,212,783) in view of Kawamoto (5,659,249) as applied to claim 1 above, and further in view of Applicant's admitted prior art (AAPA).

As to claim 10, Ott discloses IC1 angular sensor is a magnetoresistive sensor (col. 4, lines 11 - 15). Ott fails to show that the IC2 linear sensor is a magnetoresistive sensor. AAPA discloses that it is well known to use magneto resistive sensors as linear sensor (page 2, line 16) and angular sensors (page 3, line 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device of Ott in view of the teachings of Kawamoto and further in view of the teachings of AAPA such that providing magnetoresistive sensors as linear and angular sensor would provide similar results.

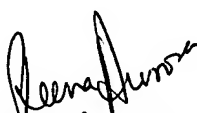
Response to Arguments

Applicant's arguments with respect to claims 1 – 11 and 16 - 18 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Reena Aurora whose telephone number is 571-272-2263. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, E. Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Reena Aurora